APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,127	08/16/2001	Joseph C. Chan	50R4781	4319

7590	03/10/2004		EXAMINER

Intellectual Property Department
Sony Electronics Inc.
123 Tice Boulevard - MD T1-1
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	EXAMINER
	LEE, RICHARD J

ART UNIT	PAPER NUMBER
2613	2

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.		Applicant(s)	
Office Action Summary	09/932,127		CHAN, JOSEPH C.	
	Examiner		**Art Unit**	
	Richard Lee		2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

1.   Claim16 is objected to because of the following informalities: At claim 16, line 4, "Cf"

should be changed to "Cb" for clarity. Appropriate correction is required.

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-3, 5-14, and 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Ishtiaq et al (US 2003/0012286 A1) in view of Zhao et al (US 2003/0067981 A1).

Ishtiaq et al discloses a method and device for suspecting errors and recovering

macroblock data in video coding as shown in Figures 1-3, and substantially the same method for

concealing errors in texture partition of a video packet, error concealment system for texture

partition of a video packet, and computer readable medium containing executable instructions

which, when executed in a processing system, causes the system to conceal errors in texture

partition of a video packet as claimed in claims 1-3, 5-14, and 17-25, comprising substantially

the same error location detector (i.e., 228, 230 of Figure 3 and see section [0031] at pages 3-4) to

receive video packets, and determine a particular macroblock within the texture partition where

error is detected, and determining a particular location within the texture partition where error is

detected; an error concealment element (i.e., 216 of Figure 3 and see page 4) to conceal the error

starting at the particular macroblock, and to conceal the error in texture data starting at the

particular location; an image smoothness evaluator (i.e., SAD of macroblocks, see pages 4-5) to

evaluate the concealed macroblocks, and evaluating image smoothness of the concealed texture

data; repeating the concealing and evaluating with one more macroblock added prior to the

previous particular macroblock/location, the repeating done until all macroblocks/texture data

units in the texture partition have been concealed (i.e., the suspicious macroblocks, and any

subsequent macroblocks within the slice are concealed (see section [0031] at pages 3-4, section

[0040] at page 5, and SAD of macroblocks, pages 4-5); storing all decoded macroblocks of

texture data in the texture partition up to the particular macroblock (i.e., 215 of Figure 3, and see

section [0031] at pages 3-4); the concealing the error starting at the particular macroblock

includes performing motion compensated temporal replacements of macroblocks starting at the

particular macroblock (see section [0031] at pages 3-4); the evaluating image smoothness of

concealed macroblocks includes computing smoothness of macroblock boundaries, wherein the

smoothness of macroblock boundaries is measured by summing pixel value mismatches between

macroblock boundary pixels, wherein the summing pixel mismatches includes storing partial

mismatch values, wherein the summing pixel value mismatches includes summing squares of the

pixel value differences (i.e., calculating SAD, MSE for macroblock boundaries, see pages 4-5);

wherein summing pixel value mismatches includes summing squares of the pixel value

differences that weights the pixel value mismatches between macroblocks belonging to different

video packets differently (i.e., calculating MSE for macroblock boundaries, and weighted

average of the average MSE/SAD over a given number of previous frames, the previous frames

pertaining to different video packets, see pages 4-5); wherein the pixel value mismatches

between macroblocks that belong to different video packets may be configured to weigh more

than the pixel values mismatches between macroblocks that belong to same video packets,

wherein the pixel value mismatches are computed by reusing the partial mismatch values from

previous iterations (i.e., the adaptive threshold that is used to compare against the calculated

SAD/MSE of frames and the thresholds Ty, Tcb, Tcr may be changed so that the pixel value

mismatches between macroblocks that belong to different video packets may be configured to

weigh more than the pixel values mismatches between macroblocks that belong to same video

packets, and the average SAD/MSE uses reused partial mismatch values from previous iterations

(i.e., previous frames), see pages 4-5); detecting the error in the video packet (i.e., as provided by

228, 230 of Figure 3), the detecting includes detecting invalid variable length code (and

inconsistent resynchronization header information (see section [0007] at page 1); and the

selecting a set of macroblocks includes recovering some of the stored decoded macroblocks,

wherein the some of the stored decoded macroblocks include decoded macroblocks up to a

macroblock that produced the best image smoothness (i.e., as provided by 215 of Figure 3, see

section [0031] at pages 3-4).

Ishtiaq et al does not particular disclose, though, the a selector to select a set of

macroblocks/texture data units, including a combination of decoded and concealed

macroblocks/texture data units, that produces best image smoothness as claimed in claims 1, 19,

21, and 24. However, Zhao et al discloses a system and method for performing bit rate

allocation for a video data stream, and teaches the conventional use of a combination of features

for concealing errors in a video packet, such as a combination of decoded and concealed

macroblocks/texture data unit that produces best image smoothness (i.e., replacing the

unrecoverable macroblock with a corresponding macroblock from a previous frame and temporal

concealment, see sections [0172] and [0174] of page 13). Therefore, it would have been obvious

to one of ordinary skill in the art, having the Ishtiaq et al and Zhao et al references in front of

him/her and the general knowledge of video error concealment techniques, would have had no

difficulty in providing the combination of decoded and concealed macroblocks/texture data units

that produces best image smoothness as taught by Zhao et al as part of the error concealment

technique within the video decoder as shown in Figure 3 of Ishtiaq for the same well known

concealment of video errors with a combination of features in order to produce the best image

purposes as claimed.

4.   Claims 4, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ishtiaq et al and Zhao et al as applied to claims 1-3, 5-14, and 17-25 in the above paragraph (3),

and further in view of Talluri et al (6,111,916).

The combination of Ishtiaq et al and Zhao et al discloses substantially the same method

for concealing errors in texture partition of a video packet, error concealment system for texture

partition of a video packet, and computer readable medium as above, but does not particularly

disclose performing motion compensated temporal replacements is done for those macroblocks

whose motion vectors have changed; wherein the detecting includes detecting receipt of out-of-

range motion vectors; and wherein the detecting includes DCT coefficient counts greater than a

predetermined amount of approximately 64 pixels form a macroblock and Y/Cr/Cf pixel values

out of range as claimed in claims 4, 15, and 16. However, Talluri et al discloses an error resilient

encoding and teaches the conventional detection of out of range motion vectors and DCT errors

(see column 3, lines 45-56, column 7, lines 18-52). And, in the event that motion vector error is

detected as taught by Talluri et al, it is considered obvious that the particular motion

compensated temporal replacements for macroblocks as disclosed in both Ishtiaq et al and Zhao

et al (see section [0031] at pages 3-4 of Ishtiaq et al and section [0172] at page 13 of Zhao et al)

may certainly be provided as the desired error concealment technique. Therefore, it would have

been obvious to one of ordinary skill in the art, having the Ishtiaq et al, Zhao et al, and Talluri et

al references in front of him/her and the general knowledge of error detections within video

coders/decoders, would have had no difficulty in providing the error detecting of motion vectors

and DCT coefficients as taught by Talluri et al as part of the error detection process within the

combination of Ishtiaq et al and Zhao et al so that error concealment may further be provided to

conceal the detected errors purposes as claimed.

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

       Zhu, Sekiguchi et al, Chung et al, Sun et al (5,247,363 ; and 5,442,400), Ozcelik et al,

Lin, and Hannuksela et al disclose various types of video encoders.

6.   Any response to this action should be mailed to:

> Commissioner of Patents and Trademarks
> Washington, D.C. 20231

       or faxed to:

       (703) 872-9314, (for formal communications intended for entry)
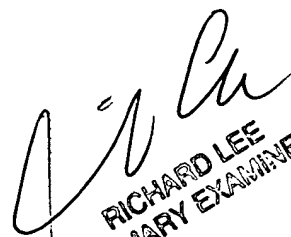
       (for informal or draft communications, please label "PROPOSED" or "DRAFT")

       Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal
       Drive, Arlington. VA., Sixth Floor (Receptionist).

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

        Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

3/5/04